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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,625	09/21/2006	Satoshi Hoshi	0649-1366PUS1	1927

  

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EXAMINER	
EOFF, ANCA	

  

ART UNIT	PAPER NUMBER
1753	

  

NOTIFICATION DATE	DELIVERY MODE
10/03/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	Application No. 10/593,625	Applicant(s) HOSHI ET AL.	
	Examiner Anca Eoff	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 9/21/2006, 8/22/2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>09/21/2006</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. The foreign priority documents JP 2004-086216 filed on March 24, 2004, JP 2004-086217 filed on March 24, 2004 and JP 2004-089828 filed on March 25, 2004 were received and acknowledged. However, in order to benefit of the earlier filing dates, certified English translations are required.
2. Claims 1-14 are pending in the application.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recite the limitation " copolymer E" and there is insufficient antecedent basis for this limitation in claim 5.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 1-2, 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugasaki et al. (US Pg-Pub 2003/0207204) in view of Sunichi et al. (JP 2003-223007).

With regard to claim 1, Sugasaki et al. disclose a photosensitive composition specially suited to fabricate a lithographic printing plate precursor, said composition comprising:

- a linear organic polymer as a binder (par.0069), equivalent to the component (C) of the instant application;
- a polymerizable compound (monomer) (par.0073), equivalent to the component (B) of the instant application, and
- a polymerization initiator (par.0083), equivalent to the component (A) of the instant application.

In fabricating a lithographic printing plate, the photosensitive layer is desirably formed on a support having a water-wettable surface (par.0315).

The photosensitive composition may be exposed with lasers, such as Ar ion laser (364 or 351 nm), Kr ion laser (356 nm or 351 nm) and He-Cd laser (325 nm) (par.0331), which shows that the composition has sensitivity for radiation of the above-mentioned wavelengths.

Sugasaki et al. further disclose that by choosing highly water-soluble materials for the photosensitive layer, the plate precursor can be processed by on-press exposure and development (par.0334), which is equivalent to the development with ink and/or fountain solution of the instant application.

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However, Sugasaki et al. fail to disclose that the exposure is performed with a one-pixel drawing time of 1 millisecond or less.

Sunichi et al. disclose a method of making a printing plate (par.0001), the method comprising an exposure step using a DMD (digital mirror device) as aligner (par.0004, par.0017) and radiation with a wavelength between 350 nm and 450 nm (par.0017). The exposure time per pixel is between 1 and 100 microseconds (par.0018).

A plate that shows good properties regarding the handling during the production process and good printing durability can be obtained (par.0007).

Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to perform the exposure process of Sugasaki et al. with a one-pixel exposure/drawing time of 1-100 microseconds as disclosed by Sunichi et al., with a reasonable expectation of success.

With regard to claims 2 and 4, Sugasaki et al. disclose that the printing plate can be exposed with lasers, such as a combination of Nd: YAG and two SHG crystals (355 nm) (par.0331) and the exposure mechanism includes an internal drum system (par.0334).

With regard to claim 12, Sugasaki et al. further disclose that the printing plate precursor can be processed by on -press exposure and development (par.0334), which means that the development is done with printing ink and/or fountain solution and then printing is performed.

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7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugasaki et al. (US Pg-Pub 2003/0207204) in view of Sunichi et al. (JP 2003-223007) as applied to claim 1 above and in further view of Fujii et al. (US Pg-Pub 2002/0180944).

With regard to claims 1 and 3, modified Sugasaki teaches a photosensitive composition and a method of exposing the photosensitive composition as applied to claim 1 above (see paragraph 6 of the Office Action) but fails to teach that the exposure is performed using an optical system comprising a DMD (digital mirror device) or a GLV (grating light valve).

Fujii et al. disclose an exposure device comprising a scanner including a high-power laser light for emitting a light beam within a predetermined wavelength region and a photosensitive material that is sensitive to the predetermined wavelength region, using said light beam which is modulated in accordance with image data (par.0022). A predetermined wavelength region is preferably 350 nm to 420 nm and more preferably 405 nm at which a maximum power can be outputted by using an inexpensive GaN semiconductor laser (par.0026). An example of photosensitive material is a planographic printing plate (par.0045).

It is preferably that the exposure portion comprises a spatial light modulator to modulate the light beam, such as a digital mirror device (DMD) or grating light valve elements (GLV) of a reflective diffracting grating type (par.0028).

Fujii et al. further disclose that such spatial modulators can be used with high stability even if the high-power laser light source outputs several tens of dozen watts

and so it is possible to improve the reliability of the exposure device even when the exposure is conducted by using high-power laser sources (par.0028).

Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to perform the exposure of the photosensitive composition of Sugasaki et al. using the exposure device with DMD or GLV spatial modulators and laser radiation of 405 nm as disclosed by Fujii et al., in order to take advantage of the improved reliability of the exposure device (Fujii et al., par.0028) and of a relatively inexpensive source of radiation (Fujii et al., par.0026).

8. Claims 5, 8-9 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugasaki et al. (US Pg-Pub 2003/0207204).

With regard to claims 5 and 8, Sugasaki et al. disclose a photosensitive composition specially suited to fabricate a lithographic printing plate precursor, said composition comprising:

- a linear organic polymer as a binder (par.0069), equivalent to the component (C) of the instant application;
- a polymerizable compound (monomer) (par.0073), equivalent to the component (B) of the instant application, and
- a polymerization initiator, such as onium salts (par.0083, par.0085), equivalent to the component (A) of the instant application.

In fabricating a lithographic printing plate, the photosensitive layer is desirably formed on a support having a water-wettable surface (par.0315).

The support may also comprise a layer of a water-soluble resin, such as polyvinylphosphonic acid. Polyvinylphosphonic acid meets the limitations for the compound (D) of the instant application, having an ethylenically unsaturated double bond (polymerizable group) and a phosphonic acid group (support adsorbative group).

The photosensitive composition may be exposed with lasers, such as Ar ion laser (364 or 351 nm), Kr ion laser (356 nm or 351 nm) and He-Cd laser (325 nm) (par.0331), which shows that the composition has sensitivity for radiation of the above-mentioned wavelength.

Sugasaki et al. further disclose that by choosing highly water-soluble materials for the photosensitive layer, the plate precursor can be processed by on-press exposure and development (par.0334), which is equivalent to the development with ink and/or fountain solution of the instant application.

With regard to claim 9, Sugasaki et al. further disclose that the photosensitive composition may comprise an inorganic filler (par.0309), equivalent to the compound F of the instant application.

With regard to claims 13-14, Sugasaki et al. disclose that the printing plate can be exposed with lasers, such as as Ar ion laser (364 or 351 nm), Kr ion laser (356 nm or 351 nm) and He-Cd laser (325 nm), a combination of Nd: YAG and two SHG crystals (355 nm) (par.0331).

Sugasaki et al. further disclose that the printing plate precursor can be processed by on -press exposure and development, which means that the development is done with printing ink and/or fountain solution and then printing is performed (par.0334).



9. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugasaki et al. (US Pg-Pub 2003/0207204) in view of Brabbs et al. (US Patent 6,495,309).

With regard to claims 5 and 6-7, Sugasaki disclose a planographic printing plate comprising a photosensitive layer on a support and a water-soluble layer intermediate layer comprising a compound having a polymerizable group and a support adsorptive group as applied to claim 5 (see paragraph 8 of the Office Action). Sugasaki et al. further disclose that the intermediate layer may be formed of a copolymer with sulfo group in the side chain but fail to give examples of copolymers with sulfo groups.

Brabbs et al. disclose a coating composition which is suitable for use as a hydrophilic layer, between the substrate and the photopolymerizable light-sensitive layer of a printing plate (column 1, lines 7-11).

A preferred coating layer composition comprises a terpolymer of acrylic acid, vinyl phosphonic acid and sodium vinyl sulphonate (column 6, lines 66-67).

Since the acrylic acid-vinyl phosphonic acid-sodium vinyl sulphonate terpolymer meets the conditions for the intermediate layer of Sugasaki et al. (copolymer with sulfo groups in the side chain) and since Brabbs et al. clearly disclose the use of the coating composition comprising such terpolymer as undercoat/intermediate layer for printing plates, it would have been obvious for one of ordinary skill in the art at the time of the invention to use a coating composition comprising the acrylic acid-vinyl phosphonic

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acid-sodium vinyl sulphonate terpolymer for the intermediate layer of the printing plate of Sugasaki et al.

The acrylic acid-vinyl phosphonic acid-sodium vinyl sulphonate terpolymer meets the limitations of claim 6 for a copolymer (E), since it comprises an acrylic acid group equivalent to the unit (a1) containing a polymerizable group and the vinyl phosphonic acid equivalent to the unit (a2) containing a support adsorbative group.

The acrylic acid-vinyl phosphonic acid-sodium vinyl sulphonate terpolymer also meets the limitations of claim 7, comprising a sulfonate group which is a hydrophilicity imparting group.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugasaki et al. (US Pg-Pub 2003/0207204) as applied to claim 9 above and in further view of Hiller et al. (WO 02/076739, wherein the citations are from the English equivalent, US Patent 6,935,236 \*).

With regard to claims 9 and 10, Sugasaki et al. disclose a planographic printing plate comprising a photosensitive composition as applied to claim 9 above (see paragraph 8 of the Office Action) but fail to disclose that the inorganic filler has a lipophilic group on a surface.

Hiller et al. disclose a flexographic printing plate comprising oxidic, siliceous or zeolitic matter in a relief layer (abstract), as fillers. The fillers may be coated with suitable dispersing aids, adhesion promoters or hydrophobicizing agents (column 5, lines 11-14).

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By adding the inorganic fillers, the occurrence of melt edges in the printing plates is avoided (column 2, lines 54-59).

Therefore, it would have been obvious for one of ordinary skill in the art to include a filler coated with a hydrophobicizing agent as disclosed by Hiller et al. in the composition of Sugasaki et al., with a reasonable expectation of success.

11. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugasaki et al. (US Pg-Pub 2003/0207204) as applied to claim 9 above and in further view of Sakaguchi et al. (US Pg-Pub 2003/0160207).

With regard to claims 9 and 11, Sugasaki et al. disclose a planographic printing plate comprising a photosensitive composition as applied to claim 9 above (see paragraph 8 of the Office Action) but fail to disclose that the inorganic filler has a polymerizable functional group on a surface.

Sakaguchi et al. disclose a curable composition comprising a curable compound with at least one ethylenically unsaturated group, a curing agent and a heat conductive filler (par.0013-0017).

Vinyl silane, epoxysilanes and (meth)acrylsilanes are used as coating for fillers in the curable composition of Sakaguchi et al. and improve the dispersibility of the filler in the composition (par.0060).

A filler coated with vinyl silane, epoxysilanes and (meth)acrylsilanes is equivalent to the filler having a polymerizable functional group on the surface thereof, as required by the instant application.

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Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to use filler coated with vinyl silane, epoxysilanes and (meth) acrylsilanes as disclosed by Sakaguchi et al. in the composition of Sugasaki et al., in order to improve the dispersibility of the filler in the composition (Sakaguchi et al., par.0060).

\* translation of WO 02/076739 is underway.

### ***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anca Eoff whose telephone number is 571-272-9810. The examiner can normally be reached on Monday-Friday, 6:30 AM-4:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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*C. H. Muef*